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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/768,180

02/02/2004

Tsuyoshi Fujihara

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EXAMINER

BRUSCA, JOHN S

ART UNIT

PAPER NUMBER

1631

MAIL DATE

DELIVERY MODE

11/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/768,180	Applicant(s) FUJIHARA ET AL.	
	Examiner John S. Brusca	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 7-20 is/are pending in the application.
- 4a) Of the above claim(s) 3,8-10 and 14-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,7,11-13,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Notice to Comply</u> .                 |

### **DETAILED ACTION**

1. This application has been transferred to a new examiner.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 17 September 2007 has been entered.

#### ***Election/Restrictions***

3. In view of the lack of prior art on the elected species of TPD functional group and the generic nature of the conductive wire limitation in claim 7 and 13, claims 4, 5, 7, and 13 (drawn to previously withdrawn functional element species) are rejoined.

#### ***Priority***

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. As no intervening prior art has been cited the applicants are no longer requested to provide a translation of the foreign priority document.

#### ***Specification***

5. The objection to the abstract in the Office action mailed 18 May 2007 is withdrawn in view of the amendment to the abstract filed 17 September 2007.
6. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However,

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this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the following reasons:

Nucleic acid sequences appear on pages 14-15 of the specification but applicants have not submitted a Sequence Listing as set forth in 37 CFR § 1.821 (see MPEP § 2422).

Applicants are required to comply with all of the requirements of 37 CFR § 1.821 through 1.825. Any response to this office action which fails to meet all of these requirements will be considered non-responsive. The Applicant's attention is directed to the attached Notice to Comply with the Sequence Rules. The nature of the sequences disclosed in the instant application has allowed an examination on the merits, the results of which are communicated below.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 11, 19, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to derivatized nucleic acids that function as transistors.

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The specification discusses derivatized nucleic acids that function as transistors in example 1, page 14, but only shows structures of such compounds as containing T<sup>1</sup> and T<sup>2</sup> without describing what the symbols represent. The specification refers to a nonexistent prior section entitled "Description of the Preferred Embodiments" as detailing the structure of the claimed compounds. Without description of the structure of nucleic acid transistors the specification cannot describe the claimed subject matter.

9. The rejection of claims 12 and 19 under 35 U.S.C. 112, second paragraph in the Office action mailed 18 May 2007 is withdrawn in view of the amendment filed 17 September 2007/

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 12, 13, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 is indefinite for a dependency on cancelled claim 2, and is therefore incomplete.

Claims 12, 13, and 19 recite the limitation "said synthetic polymer" in claims 12 and 19.

There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1, 7, 11, 12, 13, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Technion Research and Development and Foundation (Technion).

The claims are drawn to compounds comprising DNA and modifying groups that allow for conduction of electrons. In some embodiments the composition functions as a transistor or a field effect transistor.

Technion shows a composition comprising DNA associated with metallic groups in figure 3A and at least pages 41-49, and that such compositions function as a transistor in figure 6 and at least pages 51-52, and as a field effect transistor in figures 12A and 12B.

***Claim Rejections - 35 USC § 103***

13. The rejection of claims 1, 2, 4, 6, 11, 12, 19, and 20 under 35 U.S.C. 103(a) as being unpatentable over WATANABE et al. in view of TIERNEY et al. in the Office action mailed 18 May 2007 is withdrawn in view of the arguments filed 17 September 2007.

14. The rejection of claim 19 under 35 U.S.C. 103(a) as being unpatentable over WATANABE et al. in view of TIERNEY et al. as applied to claims 1, 2, 4, 6, 11, 12, 19, and 20 above, and further in view of KRONLAGE in the Office action mailed 18 May 2007 is withdrawn in view of the arguments filed 17 September 2007.

***Allowable Subject Matter***

15. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Brusca whose telephone number is 571 272-0714. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie A. Moran can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John S. Brusca/  
Primary Examiner  
Art Unit 1631

jsb

## NOTICE TO COMPLY WITH SEQUENCE RULES

Application No.

10/768,180

Examiner

John S. Brusca

Applicant(s)

FUJIHARA ET AL.

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### NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 CFR 1.821-1.825 for the following reasons:

- ☒ 1. This application clearly fails to comply with the requirements of 37 CFR 1.821-1.825. Applicant's attention is directed to these regulations, published at 1114 OG 29, May 15, 1990 and at 55 FR 18230, May 1, 1990.
- ☒ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 CFR 1.821(c).
- ☒ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CFR 1.821(e).
- ☐ 4. A copy of the "Sequence Listing in computer readable form has been submitted. However the content of the computer readable form does not comply with the requirements of 37 CFR 1.822 and/or 1.823, as indicated on the attached copy of the marked up "Raw Sequence Listing".
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable. A Substitute computer readable form must be submitted as required by 37 CFR 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 CFR 1.821(e).
- ☐ 7. Other:

#### Applicant must provide:

- ☒ An initial or ☐ A substitute computer readable form copy of the Sequence Listing.
- ☒ An initial or ☐ A Substitute paper copy of the Sequence Listing as well as an amendment directing its entry into the specification.
- ☒ A statement that the content of the paper and computer readable copies are the same, and, where applicable, include no new matter, as required by 37 CFR 1.821(e), (f), or (g) or 1.825(b) or (d).

#### FOR QUESTIONS PLEASE CONTACT:

Rules Interpretation (703) 308-4216  
CRF Submission Help (703) 308 4212  
PatentIn software help (703) 308 6856

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